

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A delivery system for a self-expanding stent, the delivery system comprising:

a catheter having a distal end, the catheter being configured to retain a self-expanding stent proximate the distal end, the catheter including

a tubular member including a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent to indicate a position of the distalmost leading end, a second marker band at a position corresponding to a trailing end of the self-expanding stent to indicate a position of the trailing end, and a third marker band between the first and second marker bands and between the leading and trailing ends of the stent, and

an outer member positioned about the tubular member, the outer member being slidable relative to the tubular member in an axial direction;

a holding sleeve positioned about the tubular member and configured to retain the positioning of the stent, wherein the holding sleeve is positioned within an interior of the stent; and

an inflatable device positioned about the tubular member, wherein the inflatable device is disposed solely between the holding sleeve and the distal end of the catheter, and wherein at least a portion of the self-expanding stent overlaps a portion of the inflatable device prior to deployment of the self-expanding stent.

2. (Previously Presented) The combination of claim 29, wherein the catheter includes an outer member coaxially positioned about the tubular member, the outer member being slidable relative to the tubular member in an axial direction.

3. (Previously Presented) The delivery system of claim 1, wherein the outer member is configured to retain a self-expanding stent in a radially-compressed position and to release the self-expanding stent to a radially-expanded position.

4. (Original) The delivery system of claim 3, wherein the inflatable device is a balloon configured to selectively assist the self-expanding stent with radial expansion.

5. (Currently Amended) A delivery system for a self-expanding stent, the delivery system comprising:

a catheter having a distal end, the catheter being configured to retain a self-expanding stent proximate the distal end, the catheter including

a tubular member including a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent, a second marker band at a position corresponding to a trailing end of the self-expanding stent, and a third marker band between the first and second marker bands, and

an outer member positioned about the tubular member, the outer member being slidable relative to the tubular member in an axial direction;

a holding sleeve positioned about the tubular member and configured to retain the stent, wherein the holding sleeve is positioned within an interior of the stent;

an inflatable device positioned about the tubular member, wherein said inflatable device is disposed solely between the holding sleeve and the distal end of the catheter; and

a loading funnel, the loading funnel being configured to be removably attachable to a distal end of the tubular member and to receive the stent therein as the stent is loaded onto the delivery system.

6. (Original) The delivery system of claim 5, wherein the loading funnel is configured to assist with radial compression of the self-expanding stent and advancement of the self-expanding stent within the outer member.

7. (Previously Presented) The delivery system of claim 1, further comprising a spacing jacket coaxially positioned about the tubular member and inside the outer member.

8. (Previously Presented) The delivery system of claim 1, further comprising a fluid port, the fluid port configured to receive a fluid and direct the fluid to a region between the tubular member and outer member.

9. (Previously Presented) The delivery system of claim 1, wherein the distal end of the tubular member includes a tapered tip.

10. (Original) The delivery system of claim 9, wherein the tapered tip includes a surface extending radially outward from the tubular member to form a seat to receive the outer member.

11. (Previously Presented) The delivery system of claim 1, wherein the third marker band indicates a position corresponding to a re-constrain limit of a partially-expanded, self-expanding stent.

12. (Previously Presented) The delivery system of claim 1, wherein the tubular member defines a first lumen and a second lumen, one of the first lumen and the second lumen configured to receive a guidewire, and the other of the first lumen and the second lumen providing a fluid passage to the inflatable device.

13. (Previously Presented) The delivery system of claim 1, wherein at least one of the first, second, and third marker bands is a radiopaque marker band.

14. (Cancelled)

15. (Original) The delivery system of claim 1, wherein the inflatable device is a balloon.

16. (Previously Presented) In combination, a self-expanding stent and a delivery system for the self-expanding stent, the combination comprising:

the delivery system of claim 1; and
a self-expanding stent mounted on the delivery system.

17. (Currently Amended) A method for implantation of a self-expanding stent, the method comprising:

attaching a funnel to a distal end of a delivery system, the delivery system including a catheter having a distal end and being configured to retain a self-expanding stent proximate the distal end, the catheter including a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent, a second marker band at a position corresponding to a trailing end of the self-expanding stent, and a third marker band between the first and second marker bands, a holding sleeve configured to retain the stent, and an inflatable device provided on the catheter and positioned beneath at least a portion of the self-expanding stent prior to deployment of the self-expanding stent, wherein the inflatable device is disposed solely between the holding sleeve and the distal end of the catheter, and wherein the holding sleeve is positioned within an interior of the stent;

loading a self-expanding stent onto the delivery system through the funnel;
delivering the delivery system to a region of a vessel to be repaired;
implanting the self-expanding stent into a wall of the vessel to be repaired;
and
inflating the inflatable device to assist expansion of the self-expanding stent.

18. (Previously Presented) The method of claim 17, wherein delivering the delivery system includes:

positioning a medical guidewire; and
guiding the delivery system with the guidewire to the area of the vessel to be repaired.

19. (Previously Presented) The method of claim 17, wherein delivering the delivery system includes:

positioning an endoscope; and
guiding the delivery system through an endoscope to the area of the vessel to be repaired.

20. (Original) The method of claim 17, wherein providing a delivery system includes providing the catheter with a tubular member and an outer member coaxially positioned about the tubular member, the outer member being slidable relative to the tubular member in an axial direction.

21. (Original) The method of claim 20, wherein implanting the self-expanding stent includes effectuating relative axial movement between the tubular member and outer member to release the stent and allow the stent to self-expand.

22. (Cancelled)

23. (Original) The method of claim 17, wherein inflating the inflatable device includes re-positioning the already-delivered delivery system such that the inflatable device is properly aligned with the self-expanded stent.

24. (Original) The method of claim 23, wherein re-positioning the already-delivered delivery system includes slightly retracting the delivery system from the point of implantation of the stent.

25. (Original) The method of claim 17, wherein inflating the inflatable device includes supplying fluid to the inflatable device.

26. (Original) The method of claim 25, wherein supplying fluid includes supplying air.

27. (Original) The method of claim 25, wherein supplying fluid includes supplying fluid by way of a lumen tube extending through the catheter.

28. (Original) The method of claim 17, further comprising:
deflating the inflatable device; and
withdrawing the delivery system from a patient's anatomy.

29. (Currently Amended) In combination, a self-expanding stent and a delivery system for the self-expanding stent, the combination comprising:

a self-expanding stent;

a catheter having a distal end, the catheter being configured to retain the self-expanding stent proximate the distal end, the catheter including a tubular member having a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent to indicate a position of the distalmost leading end, a second marker band at a position corresponding to a trailing end of the self-expanding stent to indicate a position of the trailing end, and a third marker band between the first and second marker bands and between the leading and trailing ends of the stent;

a holding sleeve positioned about the tubular member and configured to retain the stent, wherein the holding sleeve is positioned within an interior of the stent; and

an inflatable device positioned about the tubular member, at least a portion of the self-expanding stent overlapping at least a portion of the inflatable device prior to deployment of the self-expanding stent, wherein the inflatable device is disposed solely between the holding sleeve and the distal end of the catheter.

30. (Previously Presented) The combination of claim 2, wherein the outer member is configured to retain the self-expanding stent in a radially-compressed position and to release the self-expanding stent to a radially-expanded position.

31. (Currently Amended) In combination, a self-expanding stent and a delivery system for the self-expanding stent, the combination comprising:

a self-expanding stent;

a catheter having a distal end, the catheter being configured to retain the self-expanding stent proximate the distal end, the catheter including

a tubular member including a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent, a second marker band at a position corresponding to a trailing end of the self-expanding stent, and a third marker band between the first and second marker bands, and

an outer member coaxially positioned about the tubular member, the outer member being slidable relative to the tubular member in an axial direction;

a holding sleeve positioned about the tubular member and configured to retain the stent, wherein the holding sleeve is positioned within an interior of the stent around
~~the holding sleeve;~~

an inflatable device provided on the catheter, at least a portion of the self-expanding stent overlapping at least a portion of the inflatable device, wherein the inflatable device is disposed solely between the holding sleeve and the distal end of the catheter; and

a loading funnel, the loading funnel being configured to be removably attachable to a distal end of the tubular member and to receive the stent therein as the stent is loaded onto the delivery system.

32. (Previously Presented) The combination of claim 2, further comprising a spacing jacket coaxially positioned about the tubular member and inside the outer member.

33. (Previously Presented) The combination of claim 2, wherein the third marker band indicates a position corresponding to a re-constrain limit of the self-expanding stent when in a partially-expanded state.

34. (Previously Presented) The combination of claim 2, wherein the tubular member defines a first lumen and a second lumen, one of the first lumen and the second lumen configured to receive a guidewire, and the other of the first lumen and the second lumen providing a fluid passage to the inflatable device.

35. (Cancelled)

36. (Currently Amended) A delivery system for a self-expanding stent, the delivery system comprising:

a catheter having a distal end, the catheter being configured to retain a self-expanding stent proximate the distal end, the catheter including a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent, a second marker band at a position corresponding to a trailing end of the self-expanding stent, and a third marker band between the first and second marker bands;

a holding sleeve positioned about the tubular member and configured to retain the stent, wherein the holding sleeve is positioned within an interior of the stent around the holding sleeve;

an inflatable device provided on the catheter and positioned proximate the distal end, wherein the inflatable device is disposed solely between the holding sleeve and the distal end of the catheter; and

a loading funnel configured to be removably attachable to the distal end of the catheter and to receive the stent therein as the stent is loaded onto the delivery system.

37. (Previously Presented) The delivery system of claim 36, wherein the catheter includes a tubular member and an outer member positioned about the tubular member, the outer member being slidable relative to the tubular member in an axial direction.

38. (Previously Presented) The delivery system of claim 37, wherein the loading funnel is configured to assist with radial compression of the self-expanding stent and advancement of the self-expanding stent within the outer member.

39. (Previously Presented) The delivery system of claim 37, further comprising a spacing jacket coaxially positioned about the tubular member and inside the outer member.

40. (Previously Presented) The delivery system of claim 37, wherein the tubular member includes the first marker band, the second marker band, and the third marker band, wherein the third marker band indicates a position corresponding to a re-constrain limit of a partially-expanded, self-expanding stent.

41. (Previously Presented) The delivery system of claim 37, wherein the tubular member defines a first lumen and a second lumen, one of the first lumen and the second lumen configured to receive a guidewire, and the other of the first lumen and the second lumen providing a fluid passage to the inflatable device.

42. (Cancelled)

43. (Previously Presented) In combination, a self-expanding stent and a delivery system for the self-expanding stent, the combination comprising:

the delivery system of claim 36; and

a self-expanding stent mounted on the delivery system.

44. (Currently Amended) A method for implantation of a self-expanding stent, the method comprising:

providing a delivery system including a self-expanding stent, a catheter having a distal end and being configured to retain the self-expanding stent proximate the distal end and including a tubular member having a first marker band at a position corresponding to a distalmost leading end of the self-expanding stent to indicate a position of the distalmost leading end, a second marker band at a position corresponding to a trailing end of the self-expanding stent to indicate a position of the trailing end, and a third marker band between the first and second marker bands and between the leading and trailing ends of the stent, a holding sleeve positioned about the tubular member and configured to retain the stent, and an inflatable device provided on

the catheter and positioned beneath at least a portion of the self-expanding stent prior to deployment of the self-expanding stent, wherein the inflatable device is disposed solely between the holding sleeve and the distal end of the catheter, and wherein the holding sleeve is positioned within an interior of the stent;

delivering the delivery system to a region of a vessel to be repaired;

releasing a portion of the self-expanding stent to a position corresponding with the third marker band on the catheter;

re-constraining the self-expanding stent;

implanting the self-expanding stent into a wall of the vessel to be repaired; and

inflating the inflatable device to assist expansion of the self-expanding stent.